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| EXAMINER |
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WONG, LUT

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08/03/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/644,162

Applicant(s)

TRIMBERGER, STEPHEN M.

Examiner

Lut Wong

Art Unit

2129

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This office action is responsive to an AMENDMENT entered May 04, 2007 for the patent application 10/644162.

The First Office Action of Feb 07, 2007 is fully incorporated into this Final Office Action by reference.

Status of Claims

Claims 1-33 are pending.

Drawings

The drawings are objected to under 37 CFR 1.83(a) as set forth in the previous office action for reason of record.

Response to Arguments

Applicant's arguments have been fully considered but they are not persuasive.

In re pg. 8, applicant argues program controller, fitness evaluator and selection are shown in the figures and further thoroughly described in the specification.

In response

1) Fig. 3 only shown "Evolution Controller", not "program controller". If applicant intends to mean they are the same, applicant is advised to use same language in the claim. Otherwise, it is treated as different component. Hence the objection is maintained.

2) Fig. 1 does not show "fitness evaluator" as argued by the applicant. The Examiner does not see where such phrase can be found in Fig. 1. Again, applicant is advised to use same language in the claim. Otherwise, it is treated as different component. Hence the objection is maintained.

3) Similarly, nowhere in Fig. 1 show "fitness selector". Hence the objection is maintained.

Specification

Response to Arguments

Applicant's arguments, see pg. 9, with respect to the spec objection have been fully considered and are persuasive. The objection of spec has been withdrawn.

Claim Objections

Claims 4, 20, 25-33 are objected as set forth in the previous office action for reason of record.

Response to Arguments

Applicant's arguments have been fully considered but they are not persuasive.

In re pg. 9, applicant argues

claims. For example, as described in connection with an embodiment relating to FIG. 4, designs are evaluated using an approach that includes programming a programmable device such as PLD 410 with a design, and reprogramming the PLD with a new design, with result signals generated for each design (see, e.g., paragraph 0038). Therefore, objection to claim 20 should be removed.

In response, unless applicant puts the phrase "and the reprogrammed PLDs are then used to generate another consensus result" shown in [0038] into claim 20, the objection is maintained. Applicant is reminded that it's the generation of consensus result links claim 20 to claim 1, without such limitation claim 20 is improper.

In re pg. 10, applicant argues

The objection to claim 4 is misplaced because the suggested language is not required for claim 4 to properly depend from claim 3 (*i.e.*, the dependency is clear and consistent with relevant portions of the M.P.E.P. and supporting law). Specifically, claim 3 recites "weighting the result signal as a function of the associated fitness level," and claim 4 recites "wherein weighting the result signal as a function of the associated fitness level..." and thus includes word-for-word correspondence to the antecedent limitations. Further recitation to limitations "determined in a prior generation" is unnecessary for clarity. As the Office Action cites no support for the

In response, claim 3 explicitly states "weighting the result signal as a function of the associated fitness level determined in a prior generation". Without such limitation in claim 4, the scope is different. Hence, the objection is maintained.

In re pg. 10, applicant argues

The objection to claims 25-33 indicating that "the claim body does not support/suggest that it is a fault-tolerant system" is contrary to the claims' limitations and supporting specification. For instance, referring to claim 25, limitations are directed to selecting and replacing designs as a function of their fitness level. As described throughout the specification, this approach facilitates the toleration of faults such as those related to an unfit design or failure due to conditions such as temperature variation, age and radiation (e.g., that may affect the operation of a particular design). As the Office Action cites no support for the objection and as the limitations are clearly supported in view of the above, Applicant respectfully declines to make the suggested amendment and requests that the objection be removed.

In response, EN: ¶ 1 applies. Limitations in the spec are not read into the claims.

Claim Rejections - 35 USC § 112

Claims 10, 13, 15, 16, 19, 25-33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, as set forth in the previous office action for reason of record.

Claim 10 recites "includes determining the associated fitness level as a function of the difference between the associated result signal of the design and the consensus result, relative to the difference between the associated result signals of the other designs and the consensus result." It is not clear what applicant is intended to claim. Whether the determining of fitness is a function of difference alone? or a relative different compared with others. It is presumed to meant the fitness level of a design is depend on the relative fitness for the purpose of compact prosecution.

Claim 12 recites “the method of claim 10, wherein ...”. It is not clear whether applicant is intended to mean “the method of claim 1” instead because claim 10 does not recites “wherein selecting for replacement at least one design”. It is presumed to mean claim 1, according to the contexts of claim 13-14, for the purpose of compact prosecution.

Claim 13 recites “is a function of a relationship between the associated result signal of the at least one design and the consensus result”. It is not clear what kind of relationship is referring to. It is interpreted as “is a output difference between the signal and the consensus”, according to [0033], for the purpose of compact prosecution.

Claim 15 recites “wherein randomly selecting at least one design comprises biasing a probability of selecting each design as a function of the associated fitness level”. It is not clear how randomly selecting comprises biasing a probability. Claim 15 is interpreted as “The method of claim 1, wherein selecting at least one design comprises using fitness as a biasing to increases the probability of eliminating less-fit designs”, in accordance to [0023], for the purpose of compact prosecution.

Claim 16 recites “a relationship between the associated result signal of the design and the consensus result”. It is not clear what kind of relationship is referring to. It is interpreted as “output difference between the signal and the consensus”, according to [0033], for the purpose of compact prosecution.

Claim 18 recites “The method of claim 1, wherein each of the steps of the method are performed subsequent to an occurrence of at least

one of: reaching a selected time; reaching an end of a predetermined time interval; and a triggering event". It is not clear whether applicant is intended to claim such limitations in view of the spec objection.

Claims 25-29 recites "configured and arranged". It is not clear how the controller or evaluators are "arranged" to do some function.

Any claim not specifically addressed, above, is being rejected as incorporating the deficiencies of a claim upon which it depends.

Response to Arguments

Applicant's arguments have been fully considered but they are not persuasive.

In re pg. 10-11, applicant argues

Regarding claim 10, the limitations are directed to determining a fitness level of a particular design as a function of a first difference (between a result signal of the particular design and consensus result), relative to a second difference (between

result signals of other designs and the consensus result). Applicant submits that this is not only consistent with the claim language, it is consistent with the Specification and as such, would be understood by one of skill in the art. The rejection of claim 10 is therefore improper.

In response,

1) if the claim language is apparently clear, it would not cause one of ordinary skill in the art to guess what applicant is intend to claim. Applicant is advised to amend the claim, e.g. as argued, so that the plain meaning is apparently clear.

2) the claim language "relative to the difference.." is missing a noun. What is "relative to the difference"? Since the claim is ambiguous, the rejection is maintained.

In re pg. 11, applicant argues

Regarding claim 13, the specification describes various example embodiments supporting the claimed limitations directed to a relationship between an associated result signal and a consensus result. Such a relationship may, for example, involve the result signal being within a particular range of the consensus or grouping relative to results upon which the consensus is based (*see, e.g.*, paragraph 0026). One example embodiment may involve the difference as suggested in the Office Action (and, correspondingly, as apparently clear to the Examiner and one of skill in the art). In this regard, Applicant submits that the Office Action has not established that claim 13 is indefinite under Section 112(2) and the corresponding rejection is improper.

In response,

- 1) nowhere in [0026] use the word "relationship".
- 2) the word "relationship" has many meanings, such as relational, causal, mathematical relationship. It would not be apparent to one of ordinary skill in the art what applicant is intend to claim by using the word "relationship". Hence, the rejection is maintained.

In re pg. 11, applicant argues

Regarding claim 15, the specification describes various examples as to bias and probability, relative to the selection of a design, therefore providing clear support for the claim. As is consistent with the Office Action's apparent understanding of claim 15, the claimed biasing may be effected, relative to probability, to increase the probability of eliminating less-fit designs (as is consistent with paragraph 0023) or for other probability functions (*see, e.g.*, paragraph 0033). In this regard, the Section 112(2) rejection of claim 15 is improper because the claimed limitations are clear in view of the specification and as would be understood by one of skill in the art (by way of example, as apparently understood by the Examiner as well).

In response,

1) the spec [0023] clearly states "fitness maybe used as a bias to increase the probability of eliminating less-fit designs". However, nowhere in [0023] suggest the claimed language of "wherein randomly selecting at least one design comprises biasing a probability".

2) based on the plain language as claimed "wherein randomly selecting at least one design comprises biasing a probability", how can one randomly selected design comprises biasing a probability? It is self contradicting because "Random" means lack of bias (See Wikipedia). How can a random process comprises biasing? Are you saying a non biased selection comprise biasing?

In re pg. 11, applicant argues

The Section 112(2) rejection of claim 16 is improper for reasons as described above in connection with claim 10, as referring to similar limitations (a difference between a result signal and a consensus).

In response, see the response above.

In re pg. 12, applicant argues

Regarding the limitations "configured and arranged" in claims 25-29, not only is this language commonly understood and used extensively in thousands of issued patents, the specification also provides specific support therefore. For example, in various embodiments, a controller is "arranged" as shown, for example, in figures 1, 3 and 4, coupled to program programmable devices and/or to receive outputs from the same and, consequently, to carry out the limitations as claimed. The rejections to claims 25-29 are therefore improper and should be removed.

In response,

1) EN: ¶ 1 applies. Limitations in the spec are not read into the claims. The claim recites "a fitness evaluator configured and arranged to determine a consensus result...". The word "arrange" usual refers to physical arrangement, not functional. As admitted by the applicant in the remark, fig. 3 shows how the evaluator are physically "arranged", not functional arrange to determine a consensus result.

2) Whether the limitation "configured and arranged" are used in thousands of issued patents or not has no effect on the indefiniteness nature of the claimed language.

In re pg. 11-12, applicant argument with respect to claims 12, 18 are persuasive. The rejections have been withdrawn

Claim Rejections - 35 USC § 112

Claims 3, 13, 15, 16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention, as set forth in the previous office action for reason of record.

Response to Arguments

Applicant's arguments have been fully considered but they are not persuasive.

In re pg. 12, applicant argues

Regarding claim 3, various portions of the specification describe approaches to weighting involving designs that have fitness levels determined for iterative generations. For example, as indicated in paragraph 0022, weight is given to selected designs exhibiting robust fitness characteristics such as age (survival over time). In this regard, the specification provides clear support for these claimed limitations.

In response,

1) applicant has not address the question of 1) how the spec supports *weighting* the result signal as a function of the associated fitness level determined in a prior generation. 2) how to weight the signal where the signal does not has prior generation.

2) [0022] of spec only suggest weight is given to selected designs exhibiting robust fitness characteristics such as age, nowhere in [0022] or the rest of the spec address the question posted by the Examiner. The question is focus on how weights are given for the initial generation, not the rest of generation.

3) Applicant is reminded that the spec is sufficient to support the invention, but not the claimed invention.

In re pg. 12, applicant argues

Regarding claims 13 and 16, as is consistent with the above discussion regarding the Section 112(2) rejections to these claims, the claimed limitations are generally directed to a relationship between a result signal and a consensus. Such a relationship may involve, for example, a difference between the result signal and a consensus, or the result signal being in a particular range, relative to the same (*see, e.g.,* paragraph 0026 and other portions of the specification as discussed above).

In response,

1) nowhere in [0026] use the word "relationship", nor the spec mention anything about "as a function of relationship".

2) As mentioned by the applicant, the spec [0033] supports output difference from consensus. However, it would not be apparent to one skill in the art that the outputted difference is "a function of relationship". What is the plain meaning of "a function of relationship"?

3) Applicant is reminded that the spec is sufficient to support the invention, but not the **claimed** invention.

In re pg. 13, applicant argues

Regarding claim 15, as is also consistent with the above discussion regarding the Section 112(2) rejection of claim 15, the specification describes various examples as to bias and probability, relative to the selection of a design. Here, and as is consistent with the Office Action's suggestion, the claimed biasing may be effected, relative to probability, to increase the probability of eliminating less-fit designs (as is consistent with paragraph 0023) or for other probability functions (*see, e.g.,* paragraph 0033).

In response,

1) the spec [0023] clearly states "fitness maybe used as a bias to increase the probability of eliminating less-fit designs". However, nowhere in [0023] suggest the claimed language of "wherein randomly selecting at least one design comprises biasing a probability".

2) based on the plain language as claimed "wherein randomly selecting at least one design comprises biasing a probability", how can one randomly selected design

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comprises biasing a probability? It is self contradicting because "Random" means lack of bias (See Wikipedia). How can a random process comprises biasing? Are you saying a non biased selection comprise biasing?

3) Applicant is reminded that the spec is sufficient to support the invention, but not the **claimed** invention.

Claim Rejections - 35 USC § 101

Claims 21-24 are rejected under 35 U.S.C 101 because the claimed invention is directed to non-statutory subject matter, as set forth in the previous office action for reason of record.

Response to Arguments

Applicant's argument, see pg. 13, with respect to 101 rejections on claims 1-20, 25-33 have been fully considered and are persuasive. The rejections of claims 1-20, 25-33 have been withdrawn.

However, applicant's arguments with respect to claims 21-24 are not persuasive.

In re pg. 13-14, applicant argues

In a similar manner to that discussed above with independent claim 1, independent claim 21 is directed to limitations involving the use of (electronic) signals for (circuit) designs, and replacement of designs and corresponding re-programming and

physical transformation of the system as operated. In this regard, the Section 101 rejection of claim 21 is also improper.

In response, the claim only recites evolving a population of "designs", nowhere in the claims suggest the designs are hardware, nor any practical use of the designs. Hence, the method is still considered as abstract idea.

Claim Rejections - 35 USC § 102

Claims 1-17, 21-24 are rejected under 35 U.S.C. 102(e) as anticipated by Buczak et al (US 2003/0050902), as set forth in the previous office action for reason of record.

Response to Arguments

Applicant's arguments have been fully considered but they are not persuasive.

In re pg. 14, applicant argues

depend therefrom, the Office Action fails to show how the "convergence criteria" in the Buczak reference correspond to the claimed consensus result, or that the fitness level of any design is determined as a function of a consensus result. For example, the

In response,

1) EN : ¶ 2 applies: the word "consensus" is not defined. Applicant's spec [0025] merely gives examples on how consensus result is obtained.

2) the "convergence criteria" reads on the claimed limitation "consensus results" because 1) as stated above, no definition is provided. 2) Buczak's [0047] states "the fitness of the individuals meets some defined fitness criteria". Hence, when the criteria is meet, the individuals reaches a "consensus". In other words, the "defined fitness criteria" can be treated as a "consensus".

3) Since the "defined fitness criteria" is treated as a "consensus", the fitness level is determined as a function of a consensus result. In other words, the fitness is based on the "defined fitness criteria".

4) Buczak's [0047] also states "the accepted level of fitness may not be known, so the genetic algorithm is stopped after some number of generations, or after some number of generation where there is no change in the fittest individual". If such condition is not "consensus", what else can it be?

In re pg. 14, applicant argues

convergence criteria. Furthermore, Buczak's reliance upon any predefined fitness criteria requires that the predefined criteria be known or stored (e.g., in data storage) that is susceptible to failure; correspondingly, such reliance teaches away from claimed limitations directed to the determination of a consensus signal. In this regard,

In response,

1) it's 102 rejection, teach away or not has is irrelevant to anticipation.

2) EN : ¶1 and 2 applies: the word "consensus" is not defined, as mentioned above.

3) Buczak's [0047] also states "the accepted level of fitness may not be known, so the genetic algorithm is stopped after some number of generations, or after some number of generation where there is no change in the fittest individual". If the determination of "whether there is no change in the fittest individual" is not "determination of consensus", what else can it be?

In re pg. 15, applicant argues

limitations, it appears that the Office Action is alleging that the claimed limitations directed to a consensus result inherently mean "an agreement has been reach[ed]" and somehow corresponds to Buczak's convergence data. Applicant submits that this inherency argument is unsupported by any citations from the prior art, and contrary to both the claimed limitations and the Buczak reference. As discussed above, the convergence data is not determined as a function of generated result signals, but rather is set relative to other criteria (*see, e.g.,* paragraph 0047).

In response,

1) it's not an inherency-based argument. The Examiner only points out how "an agreement has been reached" reads on the claim limitation.

2) See the response above on how and why Buczak's [0047] reads on the claimed limitation.

Claim Rejections - 35 USC § 102

Claims 25-28, 30-33 are rejected under 35 U.S.C. 102(a) as being anticipated by Lohn et al, as set forth in the previous office action for reason of record.

Response to Arguments

Applicant's arguments have been fully considered but they are not persuasive.

In re pg. 15, applicant argues

102(e) rejection, the Office Action fails to show any correspondence to claimed limitations directed to determining a consensus result as a function of associated result signals from at least two designs. The Office Action further fails to show any

In response,

1) EN: ¶ 2 applies: the word "consensus" is not defined. Applicant's spec [0025] merely gives examples on how consensus result is obtained.

2) The fitness function of Lohn's reads on "determining a consensus result as a function of associated result signal from at least two designs" because 1) as stated above, no definition for "consensus result". 2) the fitness function of Lohn "compares energies and forces computed for a given set of atomic conformation using the evolving parameters with externally supplied energies and forces". As such, the "externally supplied energies and forces" are the reference point for a consensus result. When the energies and forces computed for two individual are both good or closed to the reference point, the two individuals have reached a "consensus".

In re pg. 15-16, applicant argues

result signals from at least two designs. The Office Action further fails to show any correspondence in the Lohn reference to determining an associated fitness level of

each design as a function of the associated and consensus results. Here, the Office

In response, 1) See the response above. 2) the fitness are based of how close the energies and forces computed with respect to the reference point. Hence, the claim limitation is addressed.

In re pg. 16, applicant argues

result. Moreover, it appears that the Lohr reference relies upon externally-supplied parameters (see third paragraph, Section 2.1) in its fitness function, thus requiring some information or data that is external or separate to the system at hand (as does the Buczak approach described above). In this regard, the Office Action has failed to

In response, 1) See the response above. 2) the fitness function of Lohn does determine a consensus result as shown above, regardless how the consensus is obtained.

Claim Rejections - 35 USC § 103

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lohn et al ("Evolvable Systems for Space Applications" SMC-IT 2003, July 13-16), and Loch et al ("Parallel and Sequential Testing of Design Alternatives" Management Science 2001).

Claim 29: Lohn teaches evolving alternative logic configurations. (See section 3).

Lohn fails to particularly call for sequentially program the programmable device with one design at a time. However Loch teaches sequential testing (See e.g. title of Loch). One would have been motivated to sequentially program the programmable device with one design at a time because sequential programming and testing has an advantage of learning between tests (See abstract of Loch).

Response to Arguments

Applicant's arguments have been fully considered but they are not persuasive.

In re pg. 16, applicant argues

because the Office Action fails to show that all the limitations are suggested by the references, fails to provide a proper motivation for modifying the teachings of Lohn with teachings asserted via "official notice," and fails to show that the combination could be made with a reasonable likelihood of success. As is consistent with the

In response,

1) the motivation is taught by Loch et al.

2) the combination of Lohn and Loch has a predictable result. Lohn teaches evolving alternative logic configurations without explicitly show how the evolution is performed. There are only two approaches, parallel and sequential as shown in Loch. Hence, using Fig. 8 of Lohn as an example, one of ordinary skill in the art could have replaced one block at a time to test the design and collects learning from each testing.

3) As requested by the applicant, the official notice is replaced with a prior art.

Examiner Note (EN)

¶ 1 : The claims and only the claims form the metes and bounds of the invention.

Limitations appearing in the specification but not recited in the claim are not read into the claim. The Examiner has full latitude to interpret each claim in the broadest reasonable sense. There is no mention of these limitations in the claims and the specification is not the measure of the invention. Therefore, limitations contained therein can not be read into the claims for the purpose of avoiding the prior art; see In re Sprock, 55 CCPA 743, 386 F.2d 924, 155 USPQ 687 (1968).

¶ 2: Applicant fails to define or further define the term(s). Hence, the Examiner has full latitude to interpret each claim in the broadest reasonable sense

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lut Wong whose telephone number is (571) 270-1123. The examiner can normally be reached on M-F 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vincent David can be reached on (571) 272-3080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Lut Wong/
Patent Examiner, AU 2129



JOSEPH P HIRL
PRIMARY EXAMINER
TECHNOLOGY CENTER 2100